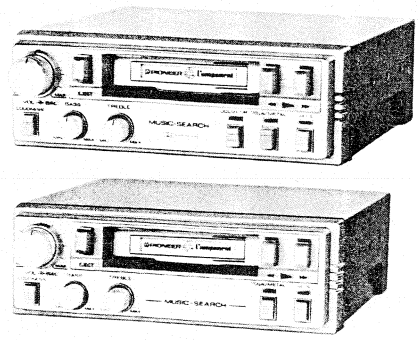
2260

PIONEER

Service Manual



ORDER NO.
CRT-253-0

COMPONENT CAR STEREO CASSETTE DECK

KP-404G US, CA, E

KP-202G US, CA, E

SPECIFICATIONS

General

Power source . . . . . DC 14.4V (10.8 ~ 15.6V allowable)
Grounding system . . . . . Negative type
Dimensions . . . . . 150(W) × 50(H) × 134(D) mm
(5-7/8(W) × 2(H) × 5-1/4(D) in.)
Weight . . . . . 1.2 kg (2.6 lbs.)
Tone controls (bass) . . . . . ±10 dB (100 Hz)
(treble) . . . . . ±10 dB (10 kHz)
Loudness contour . . . . . + 12 dB (100 Hz), + 4 dB (10 kHz)
(volume: −30 dB)
Maximum output level . . . . . 200 mV
Output impedance . . . . . 1 kΩ

Tape player

Tape . . . . . Compact cassette tape (C-30 ~ C-90)
Tape speed . . . . . 4.76 cm/sec.
(+0.19 cm/sec. −0.05 cm/sec.)
Fast forward/rewind time . . . . . 100 sec. for C-60
Wow & flutter . . . . . 0.09% (WRMS)
Frequency response . . Metal: 30 ~ 18,000 Hz (±3 dB) (KP-202G)
30 ~ 20,000 Hz (±3 dB) (KP-404G)
Normal: 30 ~ 15,000 Hz (±3 dB) (KP-202G)
30 ~ 16,000 Hz (±3 dB) (KP-404G)
Stereo separation . . . . . 45 dB
Signal-to-noise ratio . . . . . 55 dB (IHF-A network, at 1W)
(KP-202G/US, CA)
55 dB (IEC-A network) (KP-202G/E)
Dolby NR IN: 63 dB (KP-404G)
(IHF-A network, at 1W) (KP-404G/US, CA)
(IEC-A network) (KP-404G/E)
Dolby NR OUT: 55 dB (KP-404G)
(IHF-A network, at 1W) (KP-404G/US, CA)
(IEC-A network) (KP-404G/E)

Note:
Specifications and the design are subject to possible modification without notice due to improvements.

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KP-404G/202G

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- Noise Reduction System manufactured under license from Dolby Laboratories Licensing Corporation.

1. PARTS LOCATION

- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★: GENERALLY MOVES FASTER THAN ★.
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

KP-404G

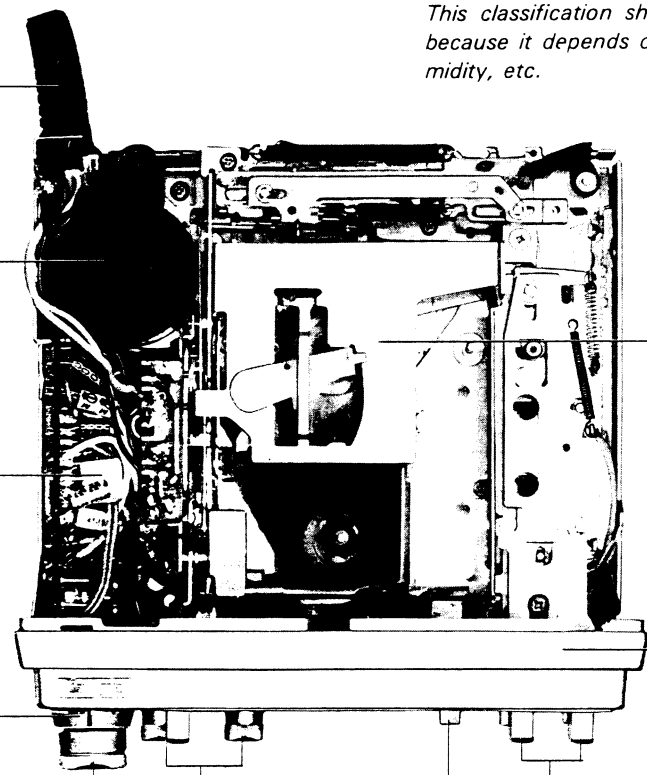


Fig. 1

KP-202G

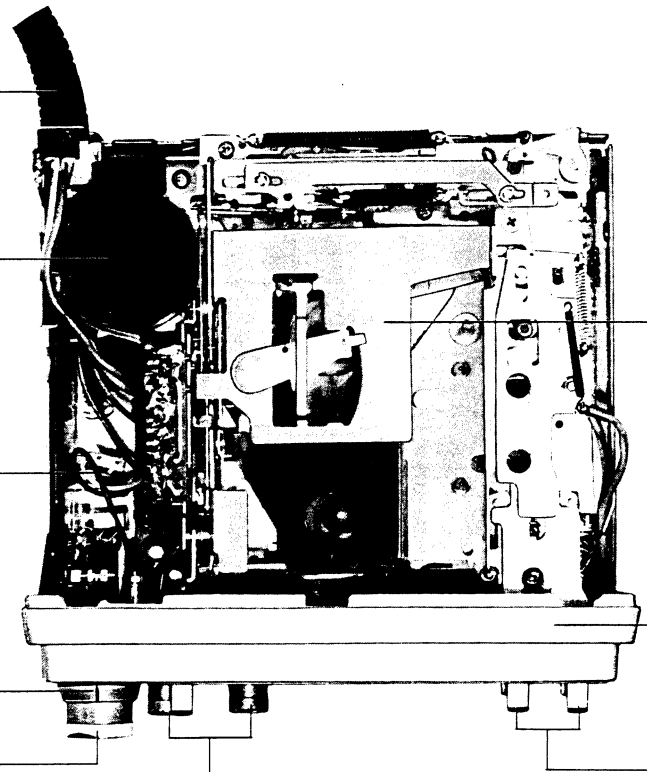


Fig. 2

2. CIRCUIT DESCRIPTION

- **Block Diagram**

KP-404G

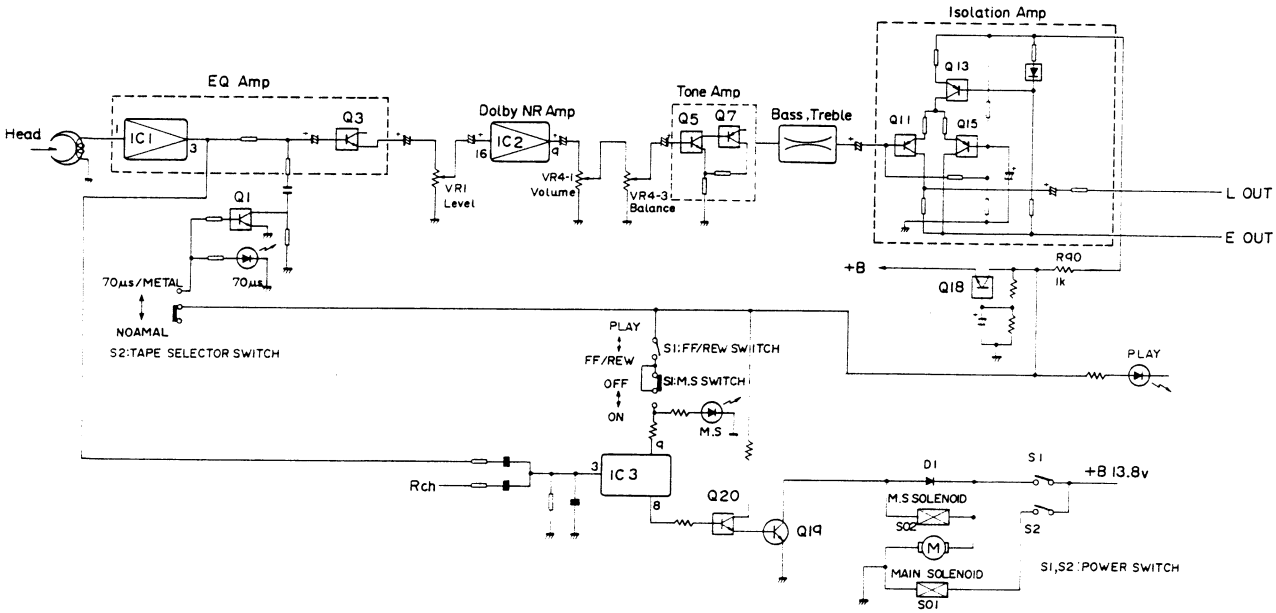


Fig. 3

KP-202G

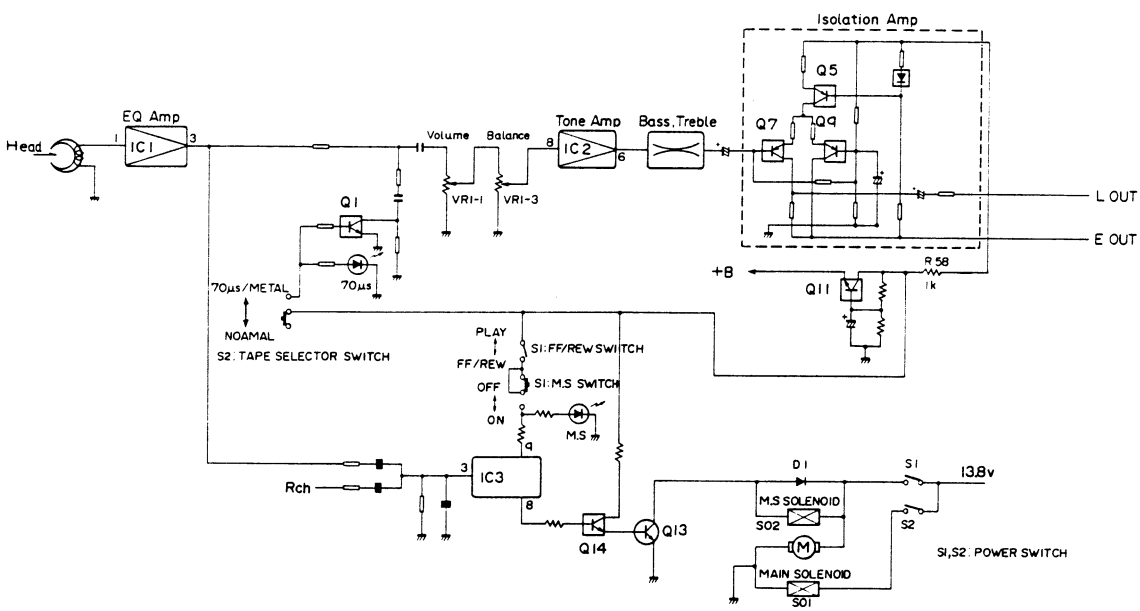


Fig. 4

• Level Diagram

KP-404G

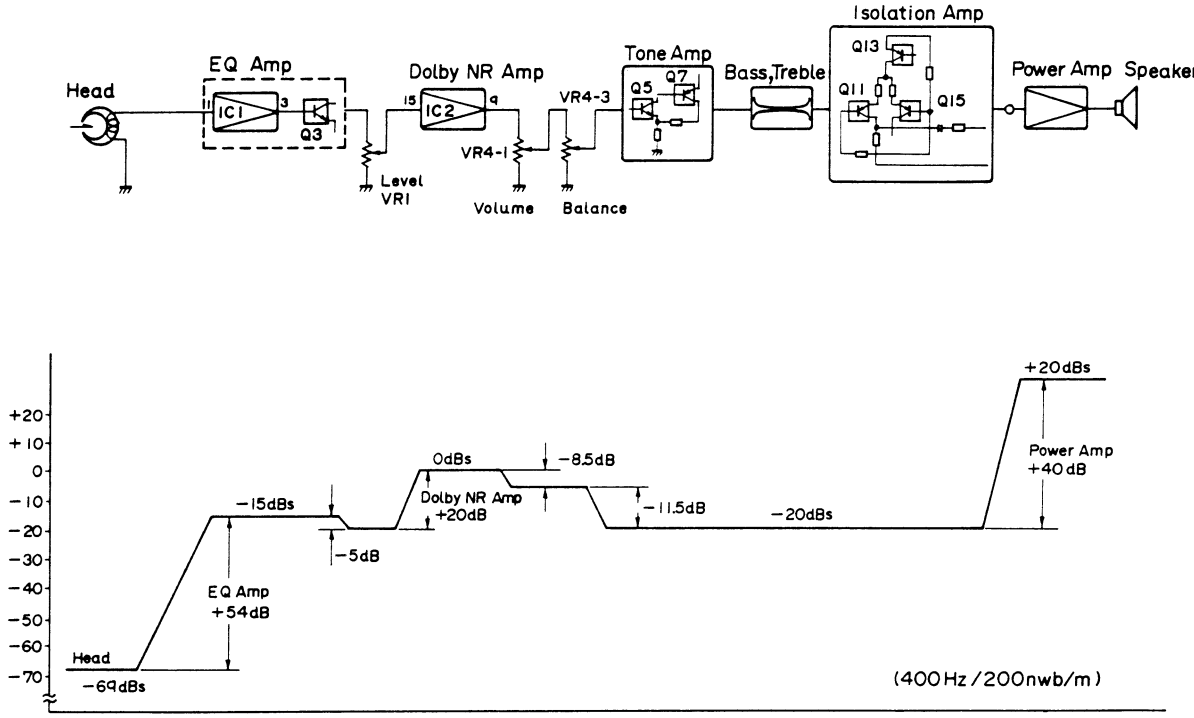


Fig. 5

KP-202G

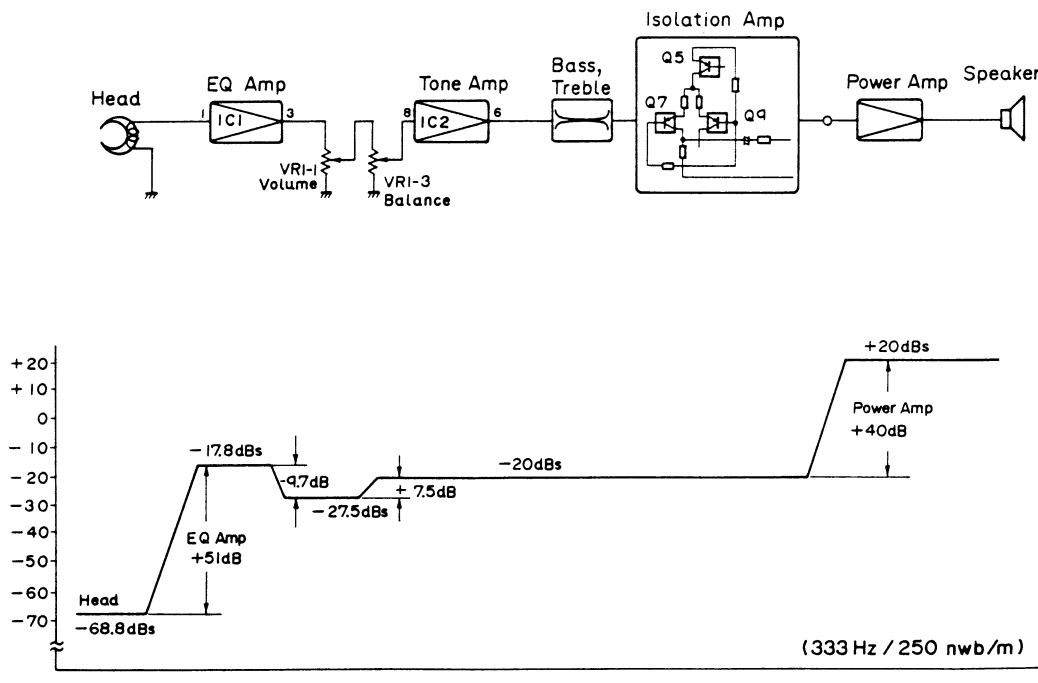


Fig. 6

• Playback equalizer Selector

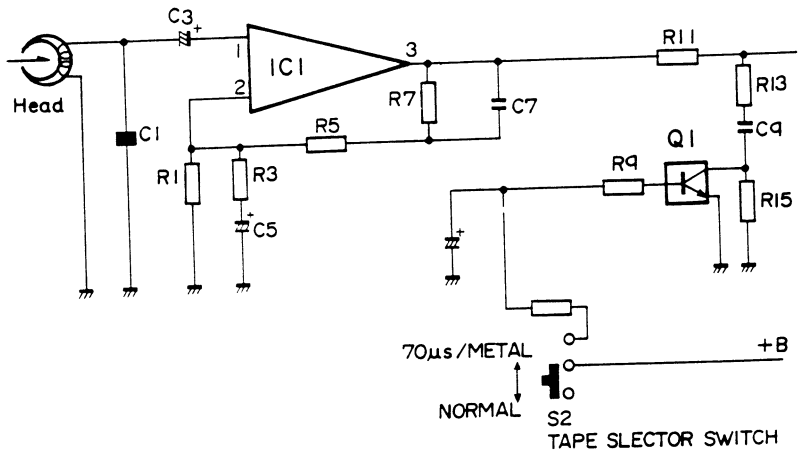


Fig. 7

When this selector is set to the NORMAL position, a time constant is produced by R5 × C7, and the frequency response is flat when a normal tape is played back. There is high resistance from R15 at this time so that C9 and R13 may be ignored.

At the 70 μs/METAL position, + B is applied to the base of Q1 which then turns ON and R15 is shorted. A time constant is produced by R13 × C9, and the frequency response is flat when a chrome or metal tape is played back.

• Isolator Amplifier

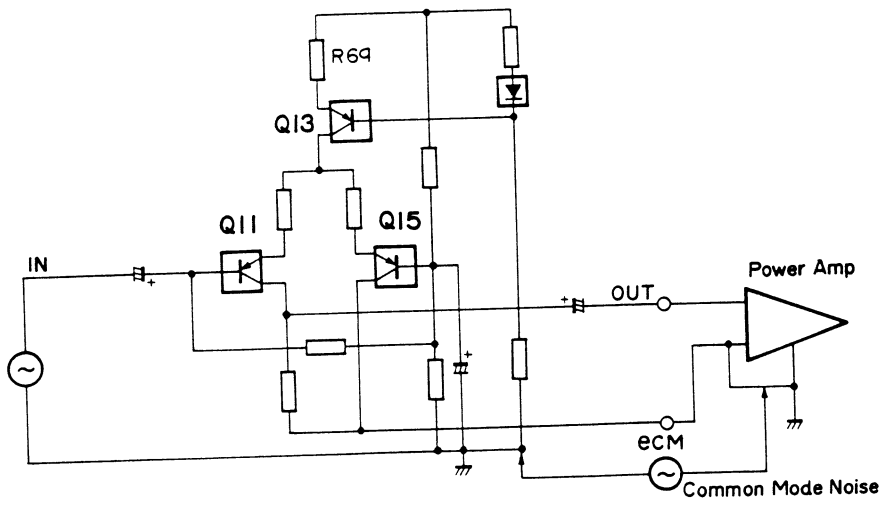


Fig. 8

The common mode noise (ripple components passing through the vehicle's chassis under normal circumstances) is injected at the same phase and amplitude from the bases of transistors Q11 and Q15 where it is canceled out and does not appear in the output.

Q13 and R69 have a much higher load impedance than Q11 and Q15.

- **Music Search (MS) Circuit**

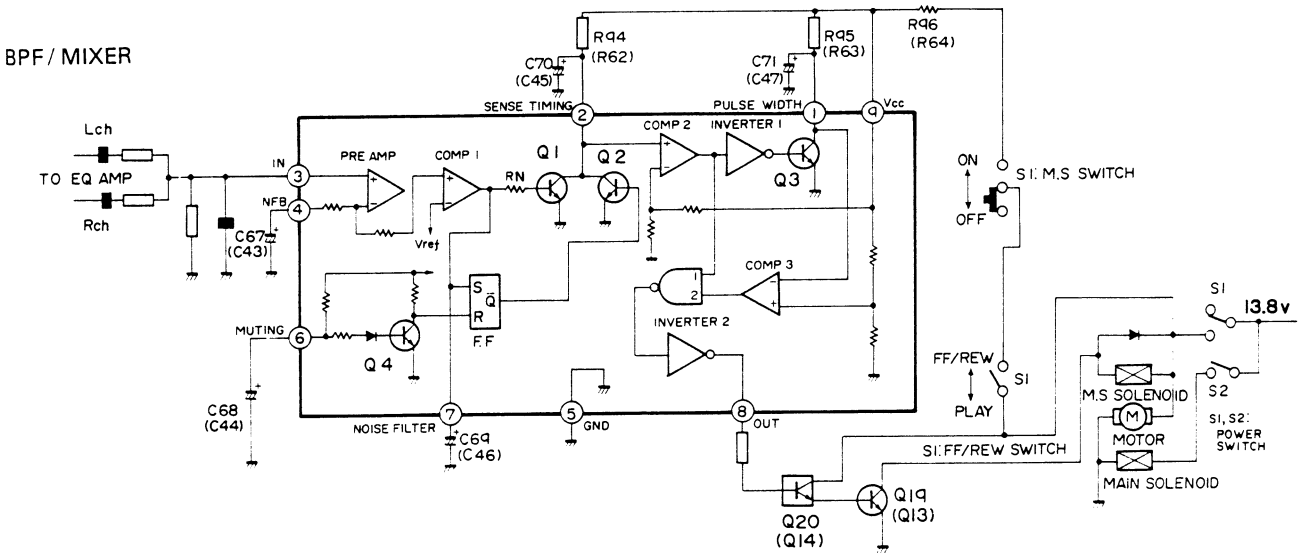
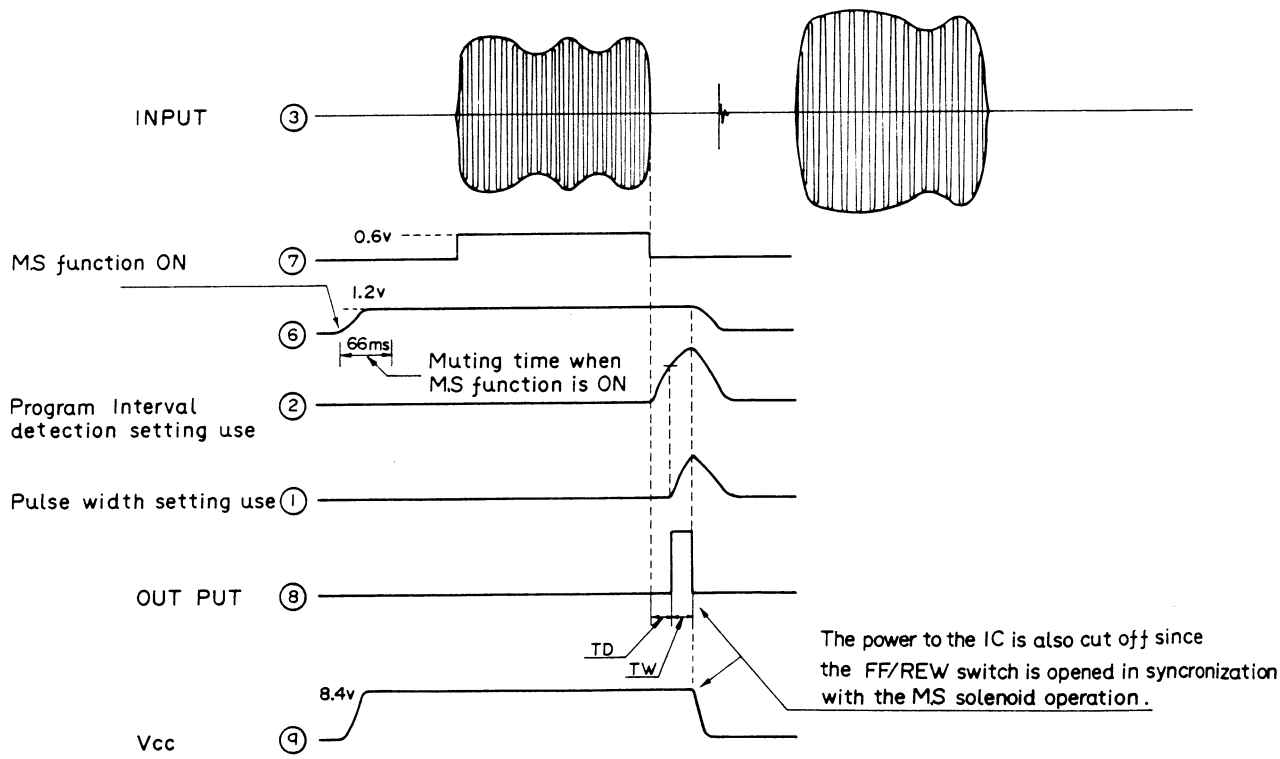


Fig. 9



TD: Program interval detection time.
TW: Pulse width.

Fig. 10

- The numbers for the capacitors and resistors given in parentheses are contained in model KP-202G.

1. Music search operation

This circuit is energized when the M.S switch is set to ON and fast forwarding or rewinding is performed.

R & L signals from EQ amp are mixed and their frequency bandwidth is limited in BPF / MIXER.

The mixed signal is fed to pin 3.

This signal is amplified by the preamplifier and enters the + input of the comparator (COMP 1) whose output is fed out at an "H" level.

This is because the input signal level of the + input is higher than that of the − input V_{ref}.

This "H" level signal turns Q1 ON and is reduced to the "L" level at pin 2. This state can be called the standby mode for program interval detection.

When the input signal falls below the input judgment level, the COMP 1 output is set to the "L" level and Q1 turns OFF. (Q2 is now OFF. Refer to the muting operation in the next section for details on the Q2 operation.)

C70 (C45) starts charging by Q1 turning OFF and the potential at pin 2 starts increasing. When this potential increases to a level higher than the COMP 2 − input V_{ref}, the comparator's output is set to the "H" level which enters the NAND gate 1 input.

Since the NAND gate 2 input is at the "H" level, the NAND gate output is set to the "L" level and the "H" level signal is fed out to pin 8 through inverter 2. This "H" level signal activates the MS solenoid drive circuit and attracts the MS solenoid. The COMP 2 "H" level output passes through inverter 1 and turns Q3 OFF. When Q3 turns OFF, C71 (C47) starts charging and the potential of pin 1 starts rising.

When this potential becomes higher than the + input V_{ref}, the COMP 3 output is set to the "L" level which changes the NAND gate output to the "H" level and sets pin 8 to the "L" level. As a result, the MS solenoid is released.

The program interval detection time (TD) is, in other words, determined by the time constants of C70 and R94 (C45 and R62) which are connected to pin 2, and the output pulse width (TW) is determined by the time constants of C71 and R95 (C47 and R63) which are connected to pin 1.

In actual fact, TD ≒ 100ms [C70: 1μF; R94: 120kΩ] (C45: 1μF; R62: 120kΩ) and TW ≒ 150ms [C71: 1μF; R95: 220kΩ] (C47: 1μF; R63: 220kΩ).

2. Muting operation

What is meant by "muting" in this context is not the general muting of the audio signal but a process designed to prevent the IC from operating improperly when the power supply voltage rises.

When + B is supplied to the IC, Q4 stays OFF for a while because of C68 (C44).

For this reason, the R input of the R-S flip-flop is set to the "H" level and output $\overline{Q}$ is set to the "H" level.

This "H" level switches Q2 ON and the MS operation is inhibited by keeping pin 2 at the "L" level.

While C68 (C44) charges, the potential of pin 6 rises.

When this potential rises above 1.2 V, Q4 turns ON and the R input of the R-S flip-flop is set to the "L" level. If an input signal now enters, the S input is set to the "H" level and so output $\overline{Q}$ is set to the "L" level at that instant when the R input was set to the "L" level, Q2 is turned OFF and the program interval detection standby mode is established.

If there is no input signal, the "H" level of $\overline{Q}$ is maintained but it reverts to the "L" level when an input signal enters.

The M.S function is therefore prevented from operating improperly by inhibiting the constant time M.S operation when the power supply voltage rises.

The actual time is approximately 66 ms [C68: 2.2 μF] (C44: 2.2μF)

3. Noise filter

The noise filter is composed of an integrator circuit based on RN inside the IC and C69 (C46). It is designed to absorb the pulses with the integrator circuit so that the MS function does not operate improperly due to pulsive noise.

In actual fact, pulses of less than about 47 ms [C69: 4.7μF] (C46: 4.7μF) are absorbed.

3. MECHANISM DESCRIPTION

• Drive mechanism

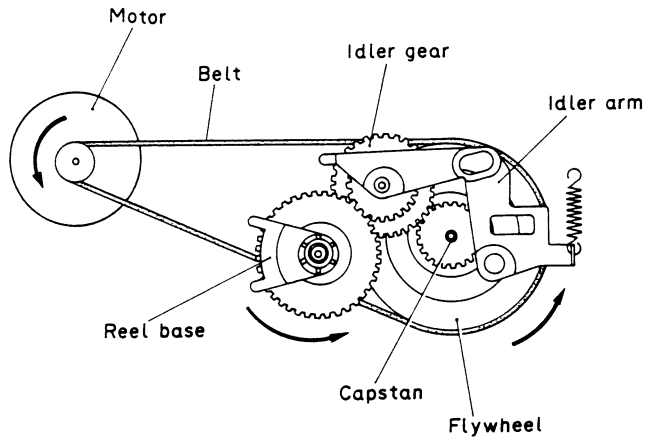


Fig. 11

The flywheel is driven by means of the belt from the motor.

The reel base is driven by the idler gear at the flywheel gear.

• Tape slack take-up mechanism

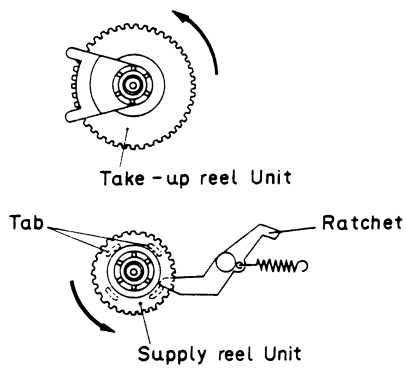


Fig. 12

When the tape has been loaded, the head does not move forward. The take-up reel Unit rotates in the direction of the arrow but the supply reel Unit tab catches the ratchet and does not rotate, and so the tape slack is removed as the tape is made taut.
When the tape is made taut and the take-up reel Unit has come to rest, entry is made into the following sensing operation.

• Sensing mechanism

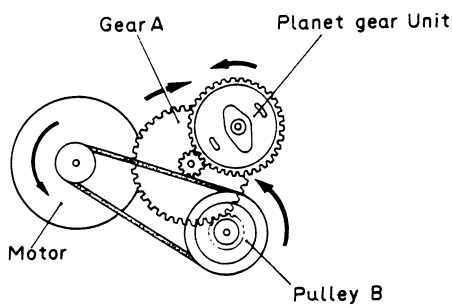


Fig. 13

Pulley B is driven by the belt from the motor, causing planet gear Unit to rotate by means of gear A in the direction of the arrow.

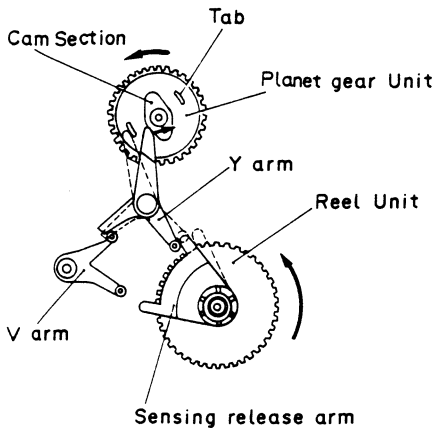


Fig. 14

〔Detail of planet gear Unit Section〕

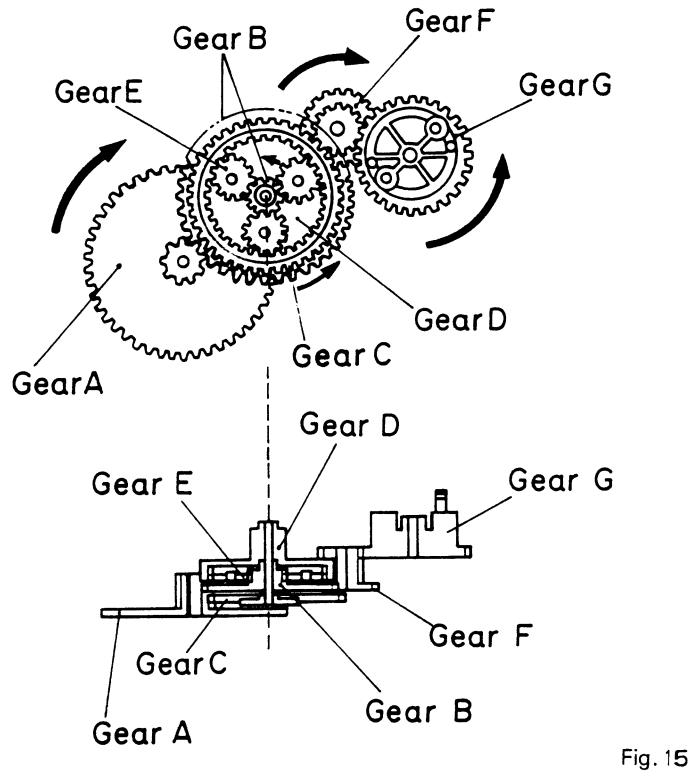


Fig. 15

While reel Unit is rotating, the sensing Y arm is pushed against the cam at the center of planet gear Unit gear D by the sensing release arm which generates friction with the reel base, and, as a result, it does not catch on the tab. Once the tape slack has been removed and the reel base comes to rest, the sensing Y arm becomes free, it is pushed in the outer direction of gear D by the cam, it catches on the tab and it stops gear D from rotating further. (Refer to Fig. 14)

Gear B is always driven by gear A. When internal gear D is free, gears E (3 of them) rotate on their own accord by the gear B small gear and internal gear D also rotates. Once the internal gear is stopped, gear E rotates and since it orbits the gear B small gear, gear c rotates. Gear C causes sensing drive gear G to rotate via gear F. (Refer to Fig. 15)

The sensing drive gear is coupled to the sub-chassis assembly, and when the cassette tape has been loaded, the mode moves to play after rewinding and the tape is automatically ejected at the end of the tape in the fast forward or play modes.

• Head base advance mechanism

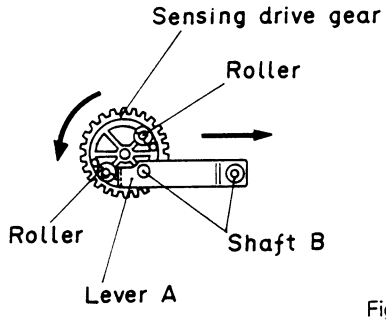


Fig. 16

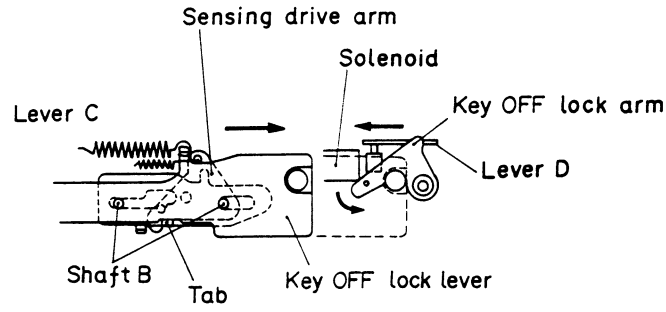


Fig. 17

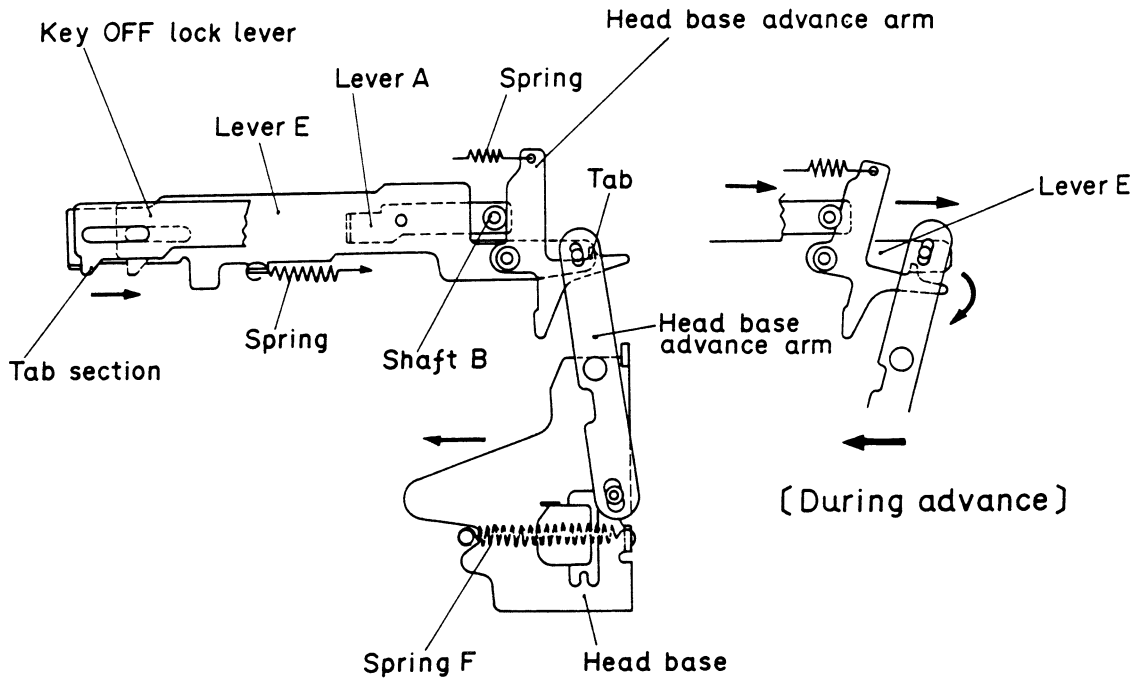


Fig. 18

When the sensing drive gear rotates, lever A in Fig. 16 is moved in the direction of the arrow. Shaft B of lever A is provided with a sensing drive arm which moves together with lever A, it catches on the tab section of the key OFF lock lever, it brings it as far as the location marked with the broken line in the figure, and is locked by the key OFF lock arm. The key OFF lock arm is held by the solenoid by means of lever D. (Refer to Fig. 17)

When the key OFF lock lever is not moving, lever E is held by the tab section but it is set free when this lever is locked.
When the sensing drive arm moves, lever A simultaneously pushes the head base lock arm with shaft B and rotates. Since the head base is always being drawn forward by the spring, the head base lock arm rotates and once the tab disengaes from the lever E shaft, the head base advances, and lever E advances in the direction of the arrow by means of the head base advance arm.

• Fast forward/rewind mechanism

When the fast forward or rewind lever is depressed, arm A moves, causing lever B to move to the left or right. The fast forward or rewind lever is locked to the tab section by the fast forward/rewind lock arm, respectively. Lever B is fitted with a fork spring and arm E moves centering the limiter gear. Arm E is provided with fast forward and rewind gears which are rotating all the time via the belt, pulley C, gear D and limiter gear from the motor. When arm E moves and the fast forward gear and take-up reel base interlock, the tape mechanism is set to the fast forward mode; when the rewind gear and supply reel base interlock, it is set to the rewind mode. The limiter gear is a combination of two gears each causing friction, and in the fast forward or rewind mode, it slips at the tape-end.

When the fast forward or rewind lever is depressed, the head base advance roller is pushed up by the cam section and the head base retreats.

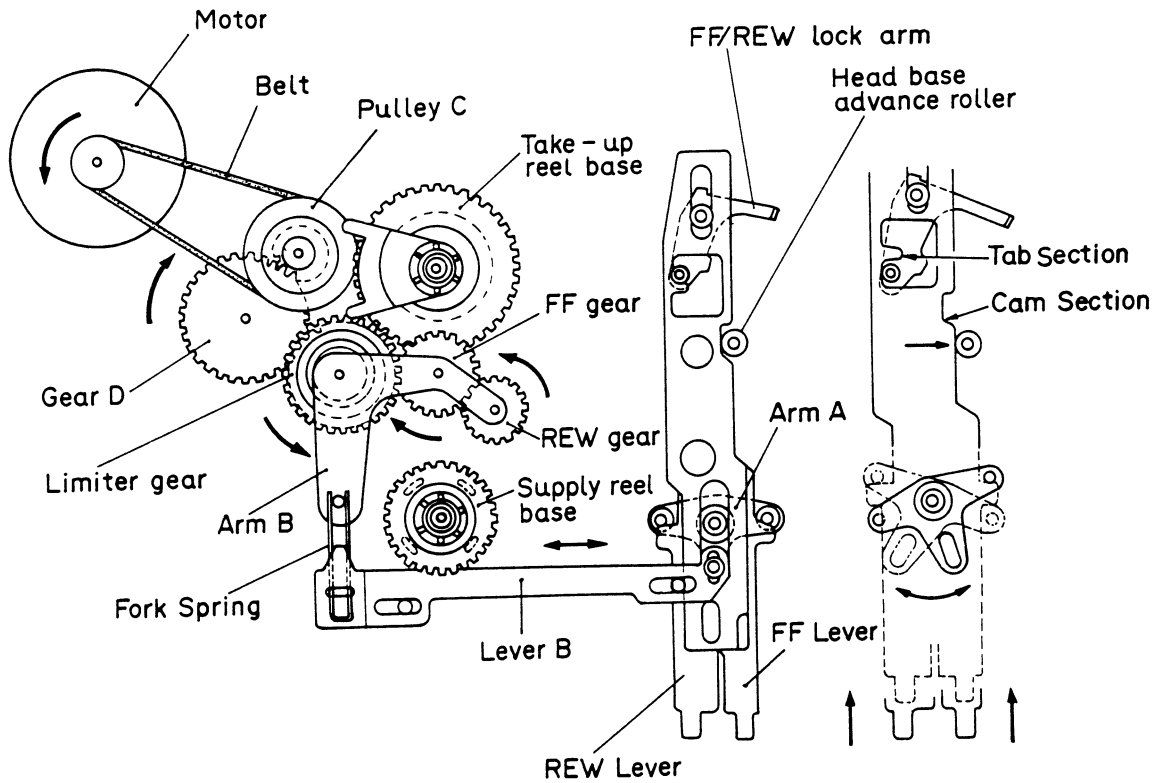


Fig. 19

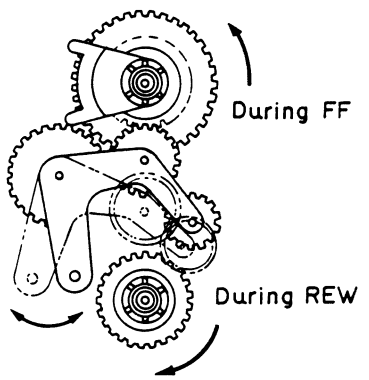


Fig. 20

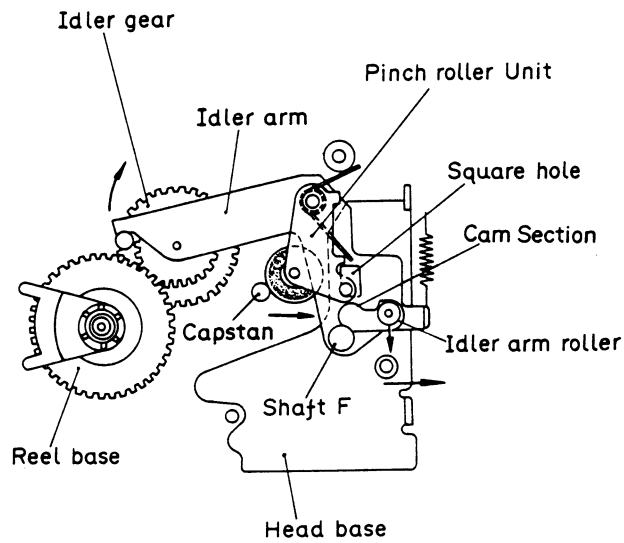


Fig. 21

As soon as the head base retreats, the square hole causes the pinch roller to retreat and since the idler arm roller is pushed up by the cam section, the idler arm moves centering on shaft F, and the reel base gear and idler gear move away.

• M.S mechanism

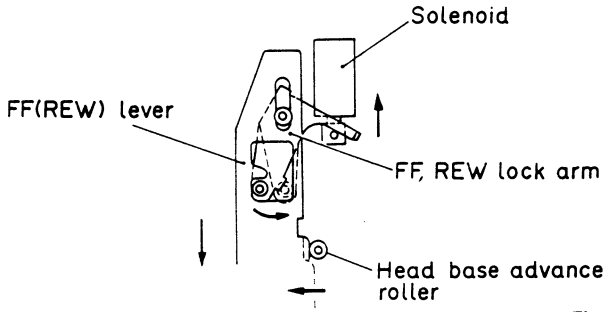


Fig. 22

As mentioned above, the fast forward (rewind) lever is locked by the fast forward/rewind lock arm in the fast forward (rewind) mode and the head retreats 1.5 mm from the play position.
The unrecorded blanks on the tape between programs are picked up by the head and the solenoid is made to attract. When the fast forward/rewind lock arm moves as a result, the roller disengages from the pawl section of the fast forward (rewind) lever, the fast forward (rewind) lever returns to its former position and the head base advances.

• Auto eject mechanism

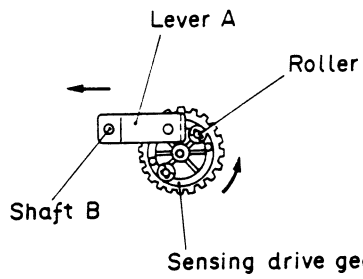


Fig. 23

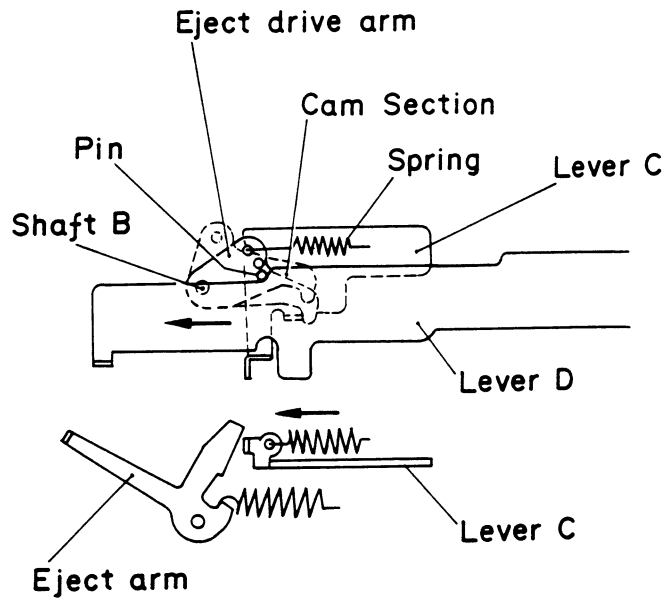
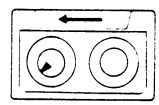
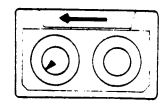
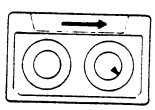
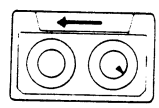
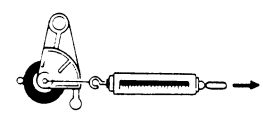


Fig. 24

As mentioned with the head base advance mechanism, lever A moves in the direction of the arrow when the sensing drive gear rotates (refer to Fig. 23). When the tape is loaded or when the tape mechanism is set to the fast forward or rewind mode, the eject drive arm which is attached to shaft B of lever A is raised by the cam section of lever D (see broken lines) and it does not catch on lever C. However, when the head base is advancing, it catches on the bent section of lever C, as shown in Fig. 24. The eject drive arm moves lever C in the direction of the arrow and the eject arm is made to rotate. The eject arm is coupled to the side frame assembly and it performs the eject operation.

4. ADJUSTMENT

4.1 CHECK POINTS OF CASSETTE MECHANISM

Confirm the following items when replacing parts of the cassette mechanism.	■ Tape speed deviation: 3,000 $^{+90}_{-30}$ Hz (4.76 cm/s $^{+3}_{-1}$ %) Using an STD-301, measure the speed a the start and end of winding and take the maximum value. Measuring time shall be 5 ~ 6 seconds.	■ Wow and flutter: Less than 0,25% (RMS) Less than 0,15% (WRMS) Using an STD-301, measure the wow and flutter at the start and end of winding and take the maximum value. If values indicated by the pointer vary considerably, adjust to 70% of the minimum and maximum values. Measuring time shall be 5 ~ 6 seconds.
■ Fast forward and rewinding time: Less than 115 seconds Using a C-60, set to fast forward and rewind, and measure the time with a stop watch.	■ Winding torque: 42 ~ 58 g·cm  Using a cassette type torque meter (120 g·cm), measure the minimum value while in the play mode. Measuring time shall be 5 ~ 6 seconds.	■ F.F. torque: 70 ~ 110 g·cm  Using a cassette type torque meter (160 g·cm), measure the value when the tape stops in the F.F. mode.
■ REW torque: 70 ~ 110 g·cm  Using a cassette type torque meter (160 g·cm), measure the value when the tape stops in the REW mode.	■ Back tension torque: 3 ~ 6 g·cm  After setting in the REW mode without loading a cassette tape for 5 minutes, measure the back tension torque in the play mode, using a cassette type torque meter.	■ Pinch roller pressure: 265 ~ 315 g  Measure the pressure with a tension meter (1 kg) at the point where the rotor stops rotating at the center of the pinch roller.
■ Cassette loading force: Less than 2.5 kg Push the center of the cassette and measure the force with a tension meter (3 kg).	■ Clearance between flywheel and flywheel bracket: 0.05 ~ 0.25 mm	■ Eject force: Less than 2 kg. Using a tension meter (3 kg), measure eject force from play mode to point at which cassette is ejected.

4.2 DOLBY NR LEVEL ADJUSTMENT (KP-404G)

- **Connection Diagram**

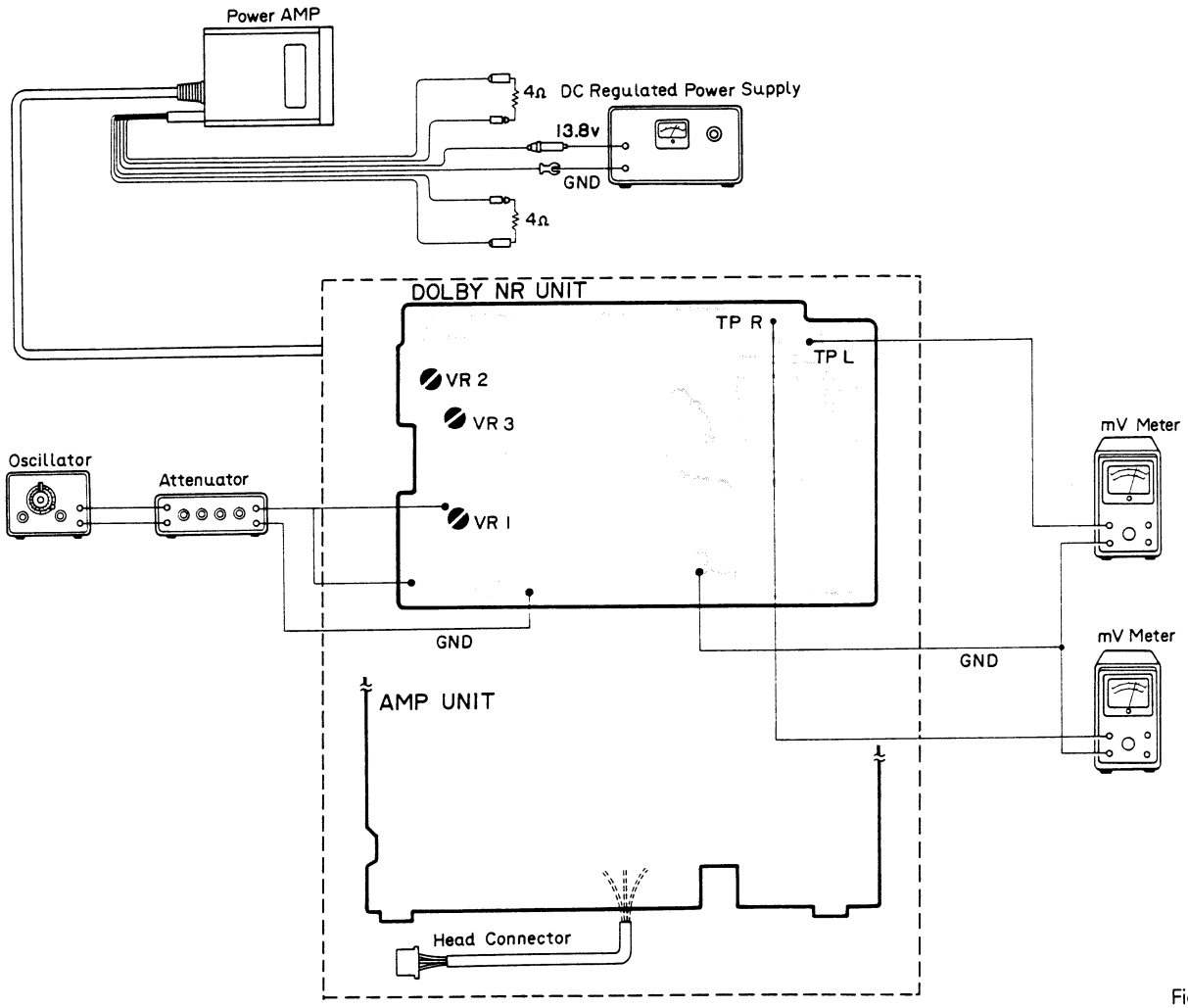


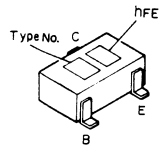
Fig. 25

- **To Adjust**

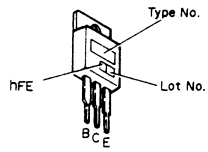
1. Apply 13.8 volts from the DC regulated power supply.
2. Playback test tape CT-150 (400 Hz-200 nwb/m), and adjust the Dolby NR Unit semi-fixed VR1 (Lch) and VR2 (Rch) so that the mV meter reads 775 mV (O dbs).
3. Disconnect the head connector from the switching unit plug and ground Lch and Rch.
4. Apply 5 kHz input frequency from the oscillator.
5. Set the Dolby NR (noise reduction) switch to OUT, and adjust attenuator so that the mV meter reads 58.7 mV (−22.4 dBs).
6. Set the Dolby NR switch to IN, and adjust VR3 so that the mV meter reads 23.4 mV (−30.4 dBs).

- **IC's and Transistors**

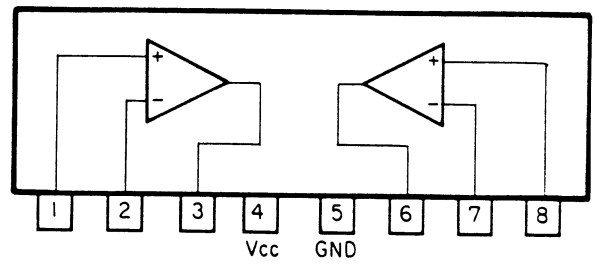
2SD601
2SC2812
2SC2712
2SB709
2SA1179
2SA1162



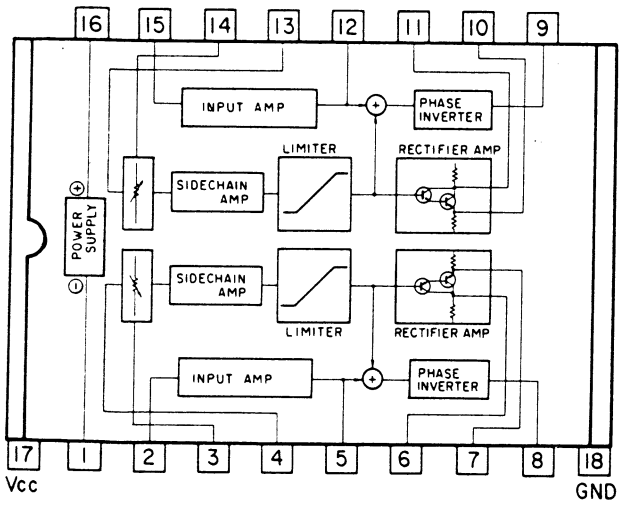
2SD613



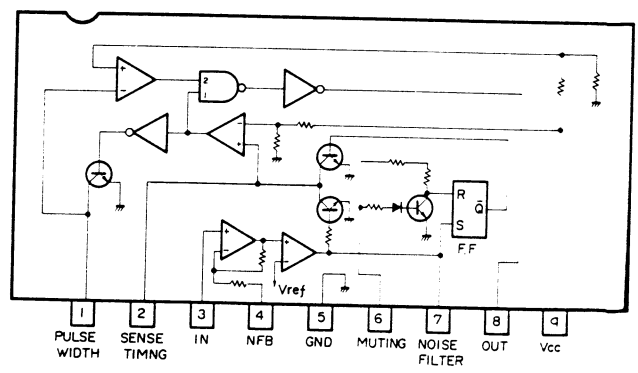
MB3106MF



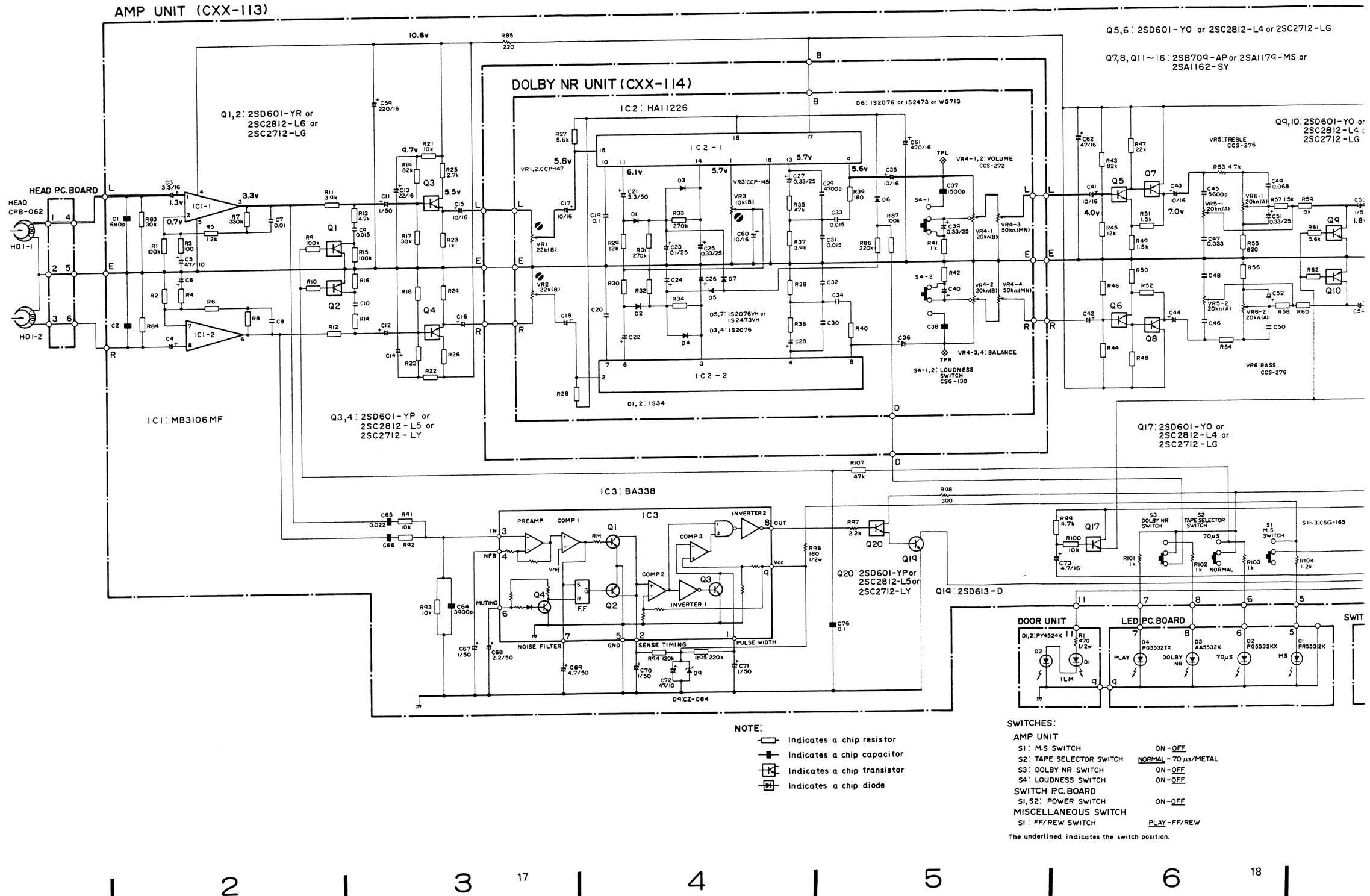
HA11226



BA338



5. SCHEMATIC CIRCUIT DIAGRAM (KP-404G)



NOTE:

- Indicates a chip resistor
- Indicates a chip capacitor
- Indicates a chip transistor
- Indicates a chip diode

SWITCHES:

AMP UNIT

S1 : M.S SWITCH	ON - OFF
S2 : TAPE SELECTOR SWITCH	NORMAL - 70 μs/METAL
S3 : DOLBY NR SWITCH	ON - OFF
S4 : LOUDNESS SWITCH	ON - OFF

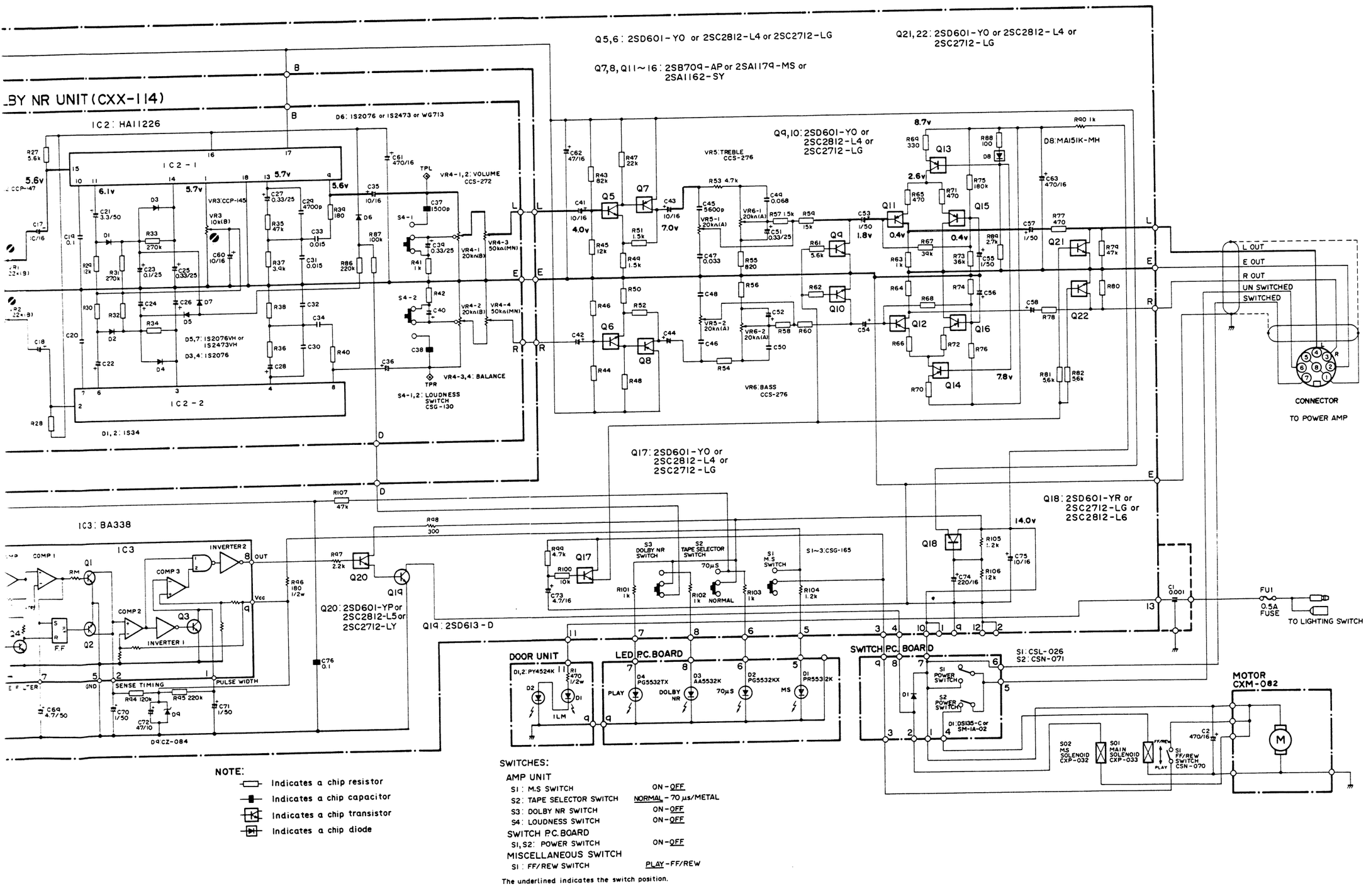
SWITCH P.C.BOARD

S1, S2 : POWER SWITCH	ON - OFF

MISCELLANEOUS SWITCH

S1 : FF/REW SWITCH	PLAY - FF/REW

The underlined indicates the switch position.



NOTE:

- Indicates a chip resistor
- Indicates a chip capacitor
- Indicates a chip transistor
- Indicates a chip diode

SWITCHES:

AMP UNIT

S1: M.S SWITCH	ON-OFF
S2: TAPE SELECTOR SWITCH	NORMAL-70 μs/METAL
S3: DOLBY NR SWITCH	ON-OFF
S4: LOUDNESS SWITCH	ON-OFF

SWITCH P.C. BOARD

S1, S2: POWER SWITCH	ON-OFF

MISCELLANEOUS SWITCH

S1: FF/REW SWITCH	PLAY-FF/REW

The underlined indicates the switch position.

Fig. 26

6. CONNECTION DIAGRAM (KP-404G)

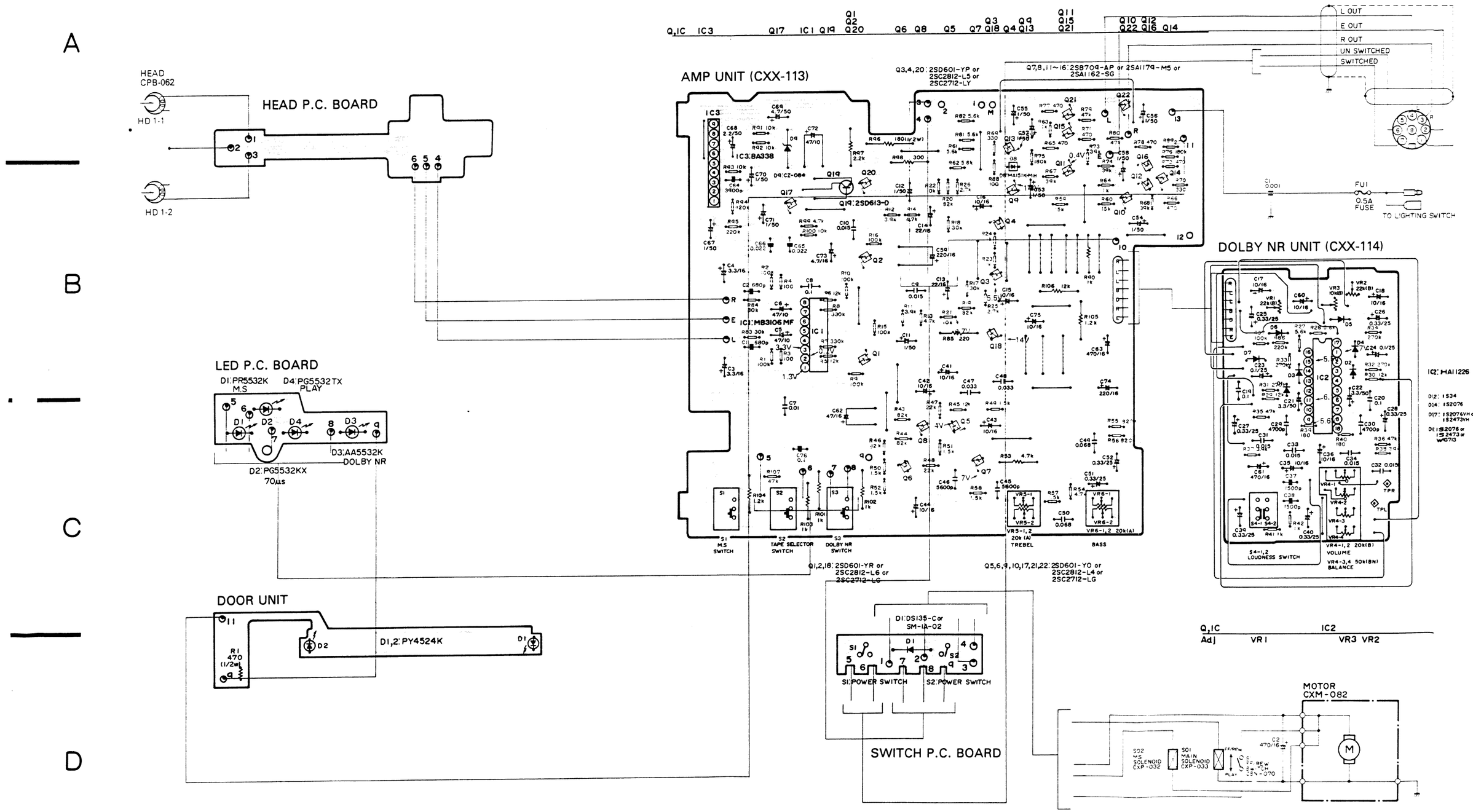
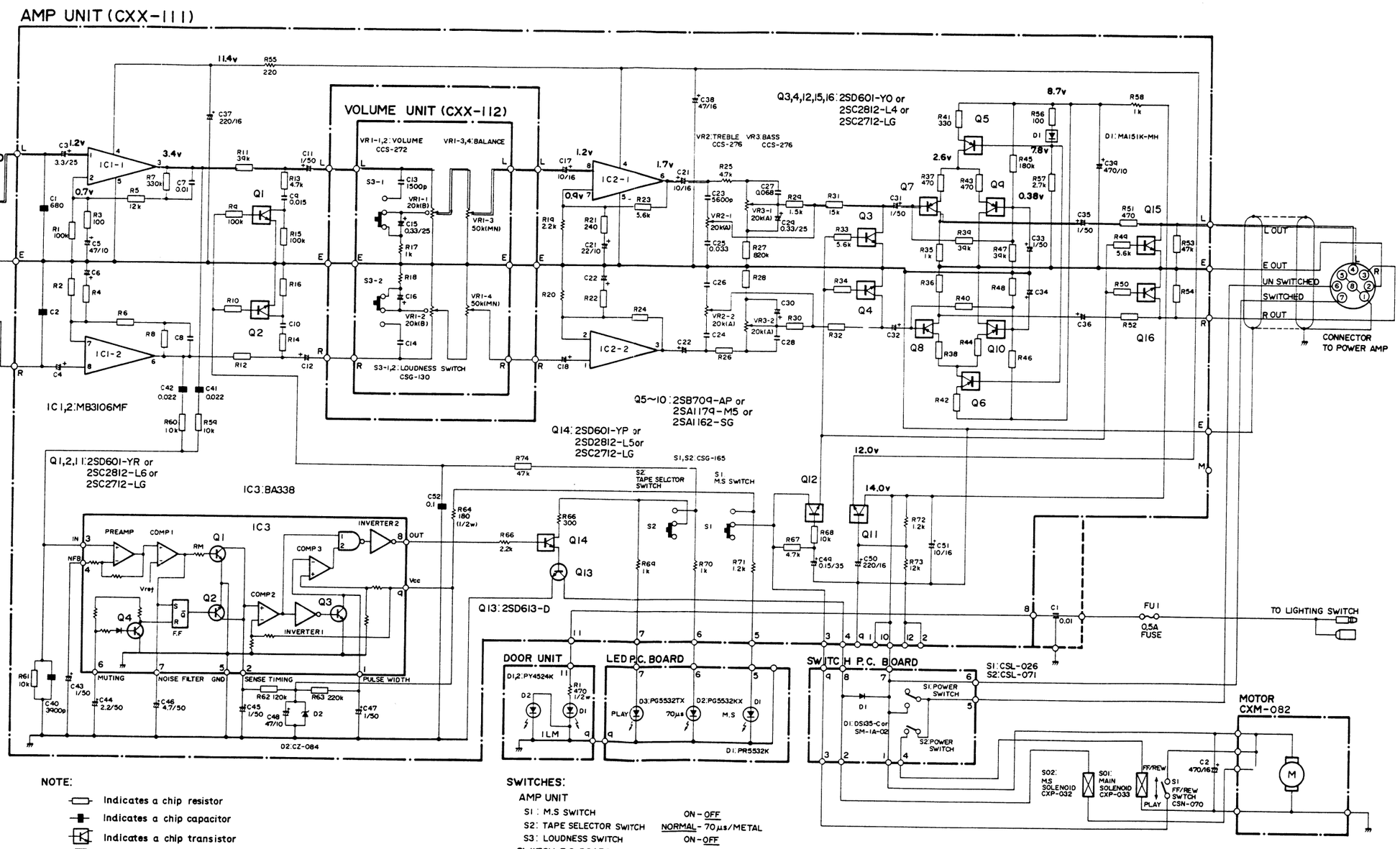


Fig. 27

7. SCHEMATIC CIRCUIT DIAGRAM (KP-202G)



NOTE:

- Indicates a chip resistor
- Indicates a chip capacitor
- Indicates a chip transistor
- Indicates a chip diode

SWITCHES:

AMP UNIT

S1 : M.S SWITCH	ON – OFF
S2: TAPE SELECTOR SWITCH	NORMAL – 70μs/METAL
S3: LOUDNESS SWITCH	ON – OFF

SWITCH P.C. BOARD

S1,S2:POWER SWITCH	ON – OFF

MISCELLANEOUS SWITCH

S1 : FF/REW SWITCH	PLAY – FF/REW

The underlined indicates the switch position.

Fig. 28

8. CONNECTION DIAGRAM (KP-202G)

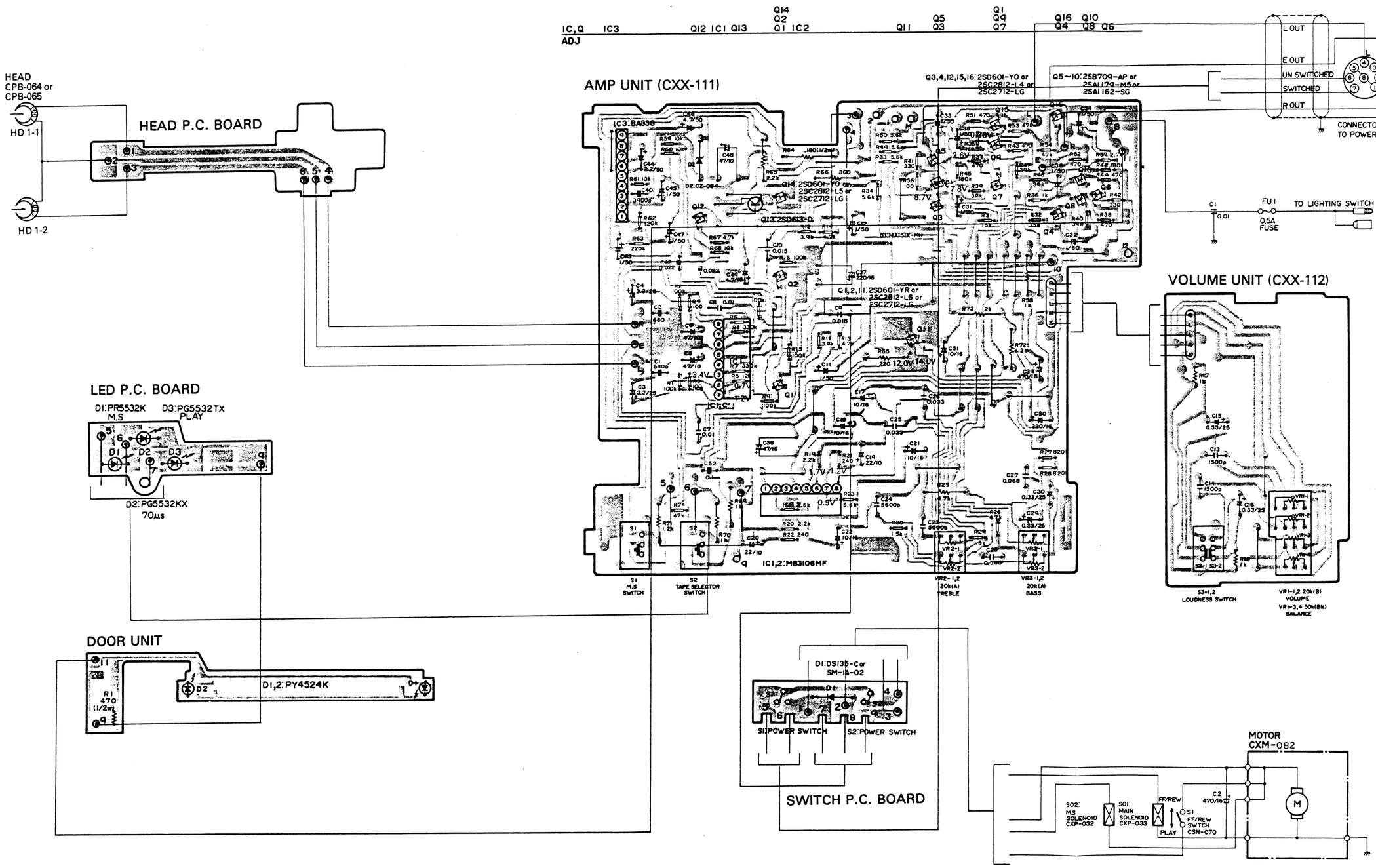


Fig. 29

9. EXPLODED VIEW

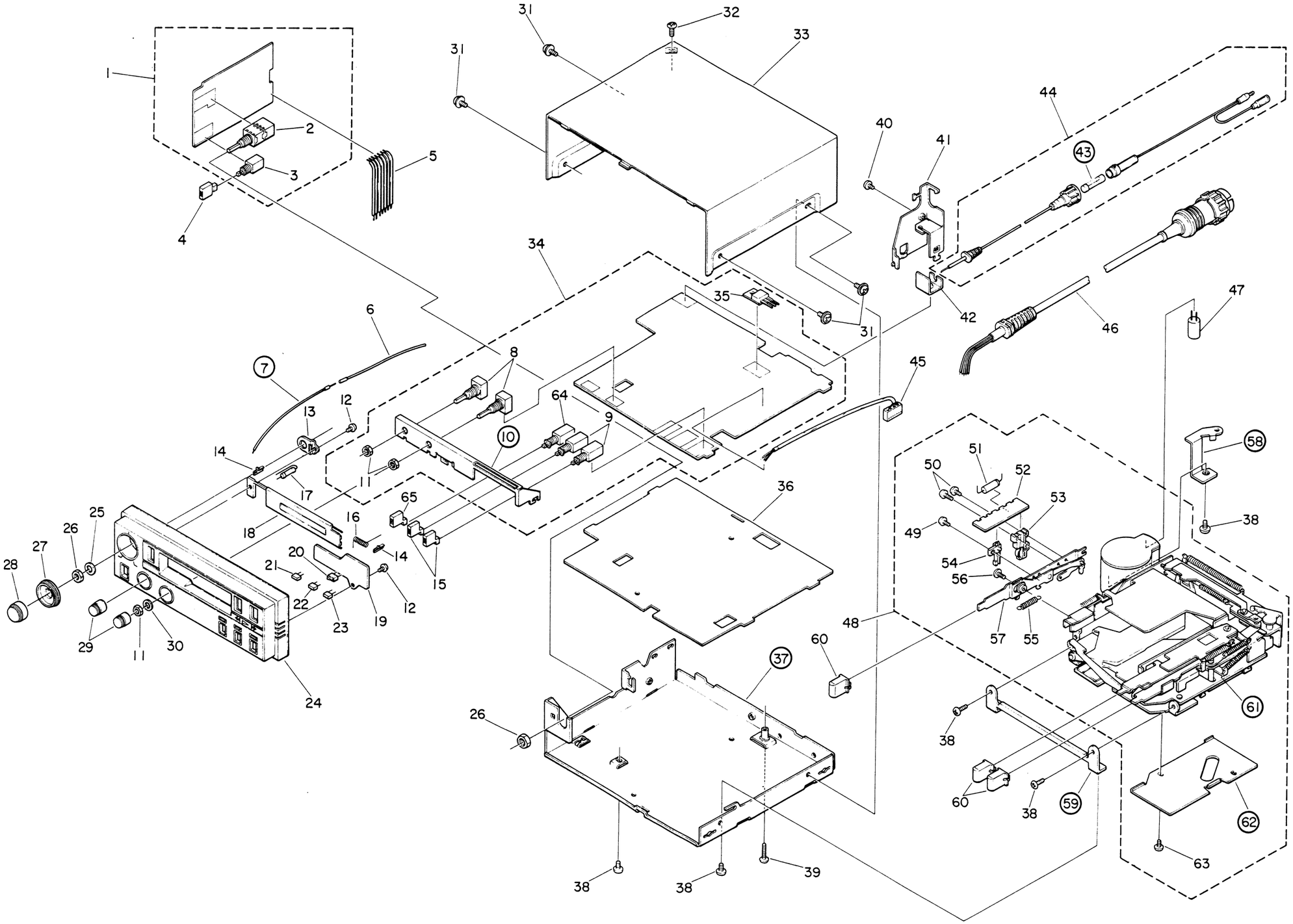


Fig. 30

PARTS LIST

NOTE:

- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★: GENERALLY MOVES FASTER THAN ★.
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts whose parts numbers are omitted are subject to being not supplied.*

Mark	No.	Part No.	Description
	1.	CXX-112	Volume Unit (KP-202G)
		CXX-114	Dolby NR Unit (KP-404G)
★★	2.	CCS-272	Volume, 20 kΩ (B), 50 kΩ (MN) (VOLUME, BALANCE)
★★	3.	CSG-130	Switch (LOUDNESS)
★	4.	CAC-351	Button (LOUDNESS)
	5.	CDE-881	Connector (KP-202G)
		CDE-882	Connector (KP-404G)
	6.	CDE-883	Connector
	7.		Connector
★★	8.	CCS-276	Volume, 20 kΩ (A) (BASS, TREBLE)
★★	9.	CSG-165	Switch (M.S, 70 μS/METAL)
	10.		Holder
	11.	CBA-066	Nut (M6)
	12.	BTZ26P060FMC	Screw
	13.	CNF-115	Plate
	14.	CNF-207	Holder
★	15.	CAC-352	Button (M.S, 70 μS/METAL)
	16.	CBH-656	Spring
	17.	RD1/2VS471J	Resistor
	18.	CXC-341	Door Unit
	19.	CNP-980	P.C. Board
★	20.	PG5532TX	LED (PLAY)
★	21.	AA5532K	LED (DOLBY NR) (KP-404G)
★	22.	PG5532KX	LED (70 μS/METAL)
★	23.	PR5532K	LED (M.S)
	24.	CXX-106	Grille Unit (KP-404G)
		CXX-107	Grille Unit (KP-202G)
	25.	CWE-086	Washer (M7)
	26.	CBA-067	Nut (M7)
★	27.	CAA-347	Knob (BALANCE) (KP-404G)
★		CAA-352	Knob (BALANCE) (KP-202G)
★	28.	CAA-345	Knob (VOLUME) (KP-404G)
★		CAA-351	Knob (VOLUME) (KP-202G)
★	29.	CAA-344	Knob (BASS, TREBLE) (KP-404G)
★		CAA-350	Knob (BASS, TREBLE) (KP-202G)
	30.	CBF-091	Washer (M6)
	31.	BMN30P060FBK	Screw
	32.	CBA-110	Screw
	33.	CNB-618	Case
	34.	CXX-113	Amp Unit (KP-404G)
		CXX-111	Amp Unit (KP-202G)
★★	35.	2SD613	Transistor
	36.	CNM-692	Insulator
	37.		Chassis
	38.	BMZ26P040FMC	Screw
	39.	BMZ26P120FMC	Screw
	40.	BMZ30P040FMC	Screw
	41.	CNF-116	Holder
	42.	CCL-107	Feed through Capacitor
	43.		Fuse, 0,5A
★	44.	CDE-879	Cord
	45.	CDE-900	Connector
	46.	CDE-880	Cord
	47.	CEA471M16L	Electrolytic Capacitor
	48.	CXC-336	Cassette Mechanism Assy (KP-404G)
		CXC-334	Cassette Mechanism Assy (KP-202G)
	49.	PMS20P040FMC	Screw
	50.	BMZ20P080FMC	Screw
★	51.	DS135 or	Diode
★		SM-1A-02	
	52.	CNP-956	P.C. Board
★★	53.	CSL-026	Switch
★★	54.	CSN-071	Switch
	55.	CBH-650	Spring
	56.	BMZ23P090FMC	Screw
	57.	CXC-303	Holder Unit
	58.		Bracket
	59.		Bracket
★	60.	CAC-354	Button (Eject, FF, REW)
	61.		Cassette Mechanism Unit
	62.		Cover
	63.	BMZ23P030FMC	Screw
★★	64.	CSG-165	Switch (DOLBY NR) (KP-404G)
★	65.	CAC-352	Button (DOLBY NR) (KP-404G)

10. CASSETTE MECHANISM EXPLODED VIEW

- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★: GENERALLY MOVES FASTER THAN ★.
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts whose parts numbers are omitted are subject to being not supplied.*

Mark	No.	Part No.	Description
★★	1.	CXM-082	Motor
	2.	CBH-665	Spring
	3.	YE20FUC	Washer
	4.	CBH-626	Spring
	5.	CNE-971	Arm
	6.	CBH-627	Spring
	7.	CBH-625	Spring
	8.	CNE-972	Arm
	9.	BMZ23P030FMC	Screw
	10.		Frame Unit
★★	11.	CNT-096	Belt
	12.	CNW-205	Pulley
	13.		Holder
	14.	CBF-134	Washer
	15.	YE15FUC	Washer
	16.	CXC-302	Holder Unit
	17.	CBH-640	Spring
	18.	YE25FUC	Washer
	19.		Lever
	20.	BMZ20P040FMC	Screw
	21.	CXC-328	Gear Unit
	22.		Gear
	23.		Spacer
	24.	CBH-638	Spring
★★	25.	CXC-289	Roller Unit
	26.		Roller
	27.	PMS26P030FMC	Screw
	28.	CNW-210	Gear
	29.		Chassis Unit
	31.	CBH-636	Spring
	32.	CNW-211	Gear
	33.	CNW-212	Gear
	34.	CNW-216	Gear
	35.	CBF-045	Washer
	36.	CXC-256	Reel Unit
	37.	CXC-257	Reel Unit
	38.	CNR-148	Flywheel
★★	39.	CNT-095	Belt
	40.	CXC-290	Holder Unit
	41.	CMZ23P030FMC	Screw
	42.	CNW-229	Screw
	43.	CNW-250	Arm
	44.	BMZ20P080FMC	Screw
★★	45.	CPB-062	Head (KP-404G)
★★		CPB-064 or	Head (KP-202G)
★★		CPB-065	
	46.	CNV-301	Rubber
	47.	CBH-198	Spring
	48.		P.C. Board
	49.		Plug
★★	50.	CSN-070	Switch (FF/REW)
	51.		P.C. Board
	52.	PMZ20P040FMC	Screw
	53.	CBH-648	Spring
	54.	CXC-296	Arm Unit
★	55.	CXP-033	Solenoid
★	56.	CXP-032	Solenoid
	57.		Lever Unit
	58.		Lever
	59.	CBH-645	Spring
	60.	CBH-634	Spring
	61.	CXC-301	Holder Unit
	62.		Lever Unit
	63.	CBH-655	Spring
	64.		Lever Unit
	65.		Arm
	66.	CBH-641	Spring
	67.	CNW-253	Arm
	68.	BMZ26P160FMC	Screw
	69.		Lever
	70.	CXC-292	Arm Unit
	71.	CMZ26P040FMC	Screw
	72.	CBH-642	Spring
	73.	CBH-643	Spring
	74.	BMZ20P025FMC	Screw
	75.	CBH-646	Spring
	76.		Lever
	77.	CBH-649	Spring
	78.	BMZ26P100FMC	Screw
	79.		Lever
	80.		lever
	81.	CXC-297	Arm Unit
	82.	CBH-647	Spring
	83.	CBH-637	Spring
	84.	CXC-291	Sub chassis Unit
	85.	CXC-254	Gear Unit

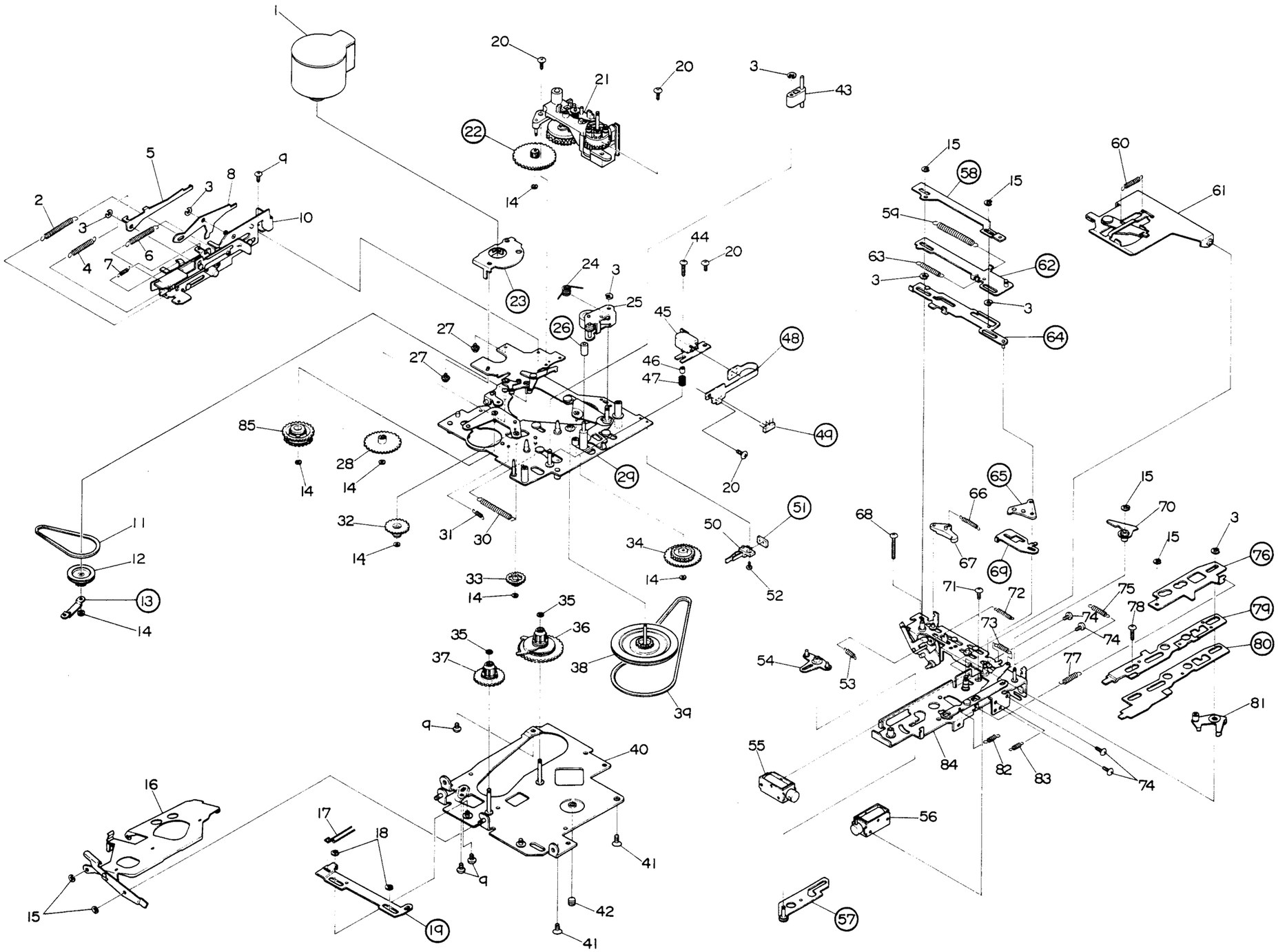

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Fig. 31

11. ELECTRICAL PARTS LIST

NOTE:

When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	*56 × 10¹*	*561*	*RD1/4PS 5 6 1 J*
47kΩ	*47 × 10³*	*473*	*RD1/4PS 4 7 3 J*
0.5Ω	*0R5*		*RN2H 0 R 5 K*
1Ω	*010*		*RS1P 0 1 0 K*

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	*562 × 10¹*		*RN1/4SR 5 6 2 1 F*

- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★: GENERALLY MOVES FASTER THAN ★.
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts whose parts numbers are omitted are subject to being not supplied.*

AMP Assy (KP-404G)

MISCELLANEOUS

NOTICE:

As for the Q7, Q8 and Q11 — Q16, use the same ones and the same rank for both channels.

Mark	Part No.	Symbol & Description
★★	MB3106MF	IC1
★★	HA11226	IC2
★★	BA338	IC3
★★	2SD601-YR or	Q1, Q2, Q18 Chip Transistor
★★	2SD601-YS or	
★★	2SC2812-L6 or	
★★	2SC2812-L7 or	
★★	2SC2712-LG or	
★★	2SC2712-LL	
★★	2SD601-YP or	Q3, Q4, Q20 Chip Transistor
★★	2SD601-YO or	
★★	2SD601-YR or	
★★	2SD601-YS or	
★★	2SC2812-L5 or	
★★	2SC2812-L6 or	
★★	2SC2812-L7 or	
★★	2SC2712-LY or	
★★	2SC2712-LG or	
★★	2SC2712-LL	
★★	2SD601-YO or	Q5, Q6, Q9, Q10, Q17,
★★	2SD601-YP or	Q21, Q22 Chip Transistor
★★	2SD601-YO or	
★★	2SD601-YR or	
★★	2SD601-YS or	
★★	2SC2812-L4 or	
★★	2SC2812-L5 or	
★★	2SC2812-L6 or	
★★	2SC2812-L7 or	
★★	2SC2712-LO or	
★★	2SC2712-LY or	
★★	2SC2712-LG or	
★★	2SC2712-LL	
★★	2SB709-AP or	Q7, Q8, Q11—Q16 Chip Transistor
★★	2SB709-AQ or	
★★	2SB709-AR or	
★★	2SB709-AS or	
★★	2SA1179-M5 or	
★★	2SA1179-M6 or	
★★	2SA1179-M7 or	
★★	2SA1162-SY or	
★★	2SA1162-SG	
★★	2SD613	Q19
★	1S34	D1, D2
★	1S2076	D3, D4
★	1S2076 VH or	D5, D7
★	1S2473 VH	
★	1S2076 or	D6
★	1S2473 or	
★	WG713	
★	MA151K-MH	D8 Chip Diode
★	CZ-084	D9
★★	CCP-147	VR1, VR2 Volume, 22 kΩ (B)
★★	CCP-145	VR3 Volume, 10 kΩ (B)
★★	CCS-272	VR4 Volume, 20 kΩ (B), 50 kΩ (MN)
★★	CCS-276	VR5, VR6 Volume, 20 kΩ (A)
★★	CSG-165	S1—S3 Switch (MS, 70 μS/METAL, DOLBY NR)
★★	CSG-130	S4 Switch (LOUDNESS)

RESISTORS

Mark	Part No.	Symbol & Description
	RS1/8S□□□J	R1—R52, R54—R84, R86—R89, R91—R95, R99, R100, R107 Chip Resistor
	RD1/2PS□□□	R96
	RD1/4PM□□□J	R53, R85, R90, R97, R98, R101—R106

CAPACITORS

Mark	Part No.	Symbol & Description
	CKSYB681K50	C1, C2 Chip Capacitor
	CSZA3R3M16	C3, C4
	CCH-066	C5, C6, C72 47 μF/10V
	CQMA103J50	C7, C8
	CQMA153J50	C9, C10, C31—C34
	CCH-060	C11, C12, C53—C58, C67, C70, C71 1 μF/50V
	CCH-065	C13, C14 22 μF/16V
	CCH-063	C15—C18, C35, C36, C41—C44, C60, C75 10 μF/16V
	CQMA104J50	C19, C20
	CCH-068	C21, C22 3.3 μF/50V
	CSYA0R1M25 SAN	C23, C24
	CSYAR33M25 SAN	C25—C28, C39, C40, C51, C52
	CQMA472J50	C29, C30
	CKSYB152K50	C37, C38 Chip Capacitor
	CQMA562J50	C45, C46
	CQMA333J50	C47, C48
	CAMA683J50	C49, C50
	CEA221M16L	C59, C74
	CEA471M16L	C61, C63
	CEA470M16L	C62
	CKSYB392K50	C64 Chip Capacitor
	CKSYF223Z50	C65, C66 Chip Capacitor
	CCH-061	C68 2.2 μF/50V
	CCH-062 or CCZA4R7M16	C69 4.7 μF/50V
	CSZAR15M35	C73
	CKSYF104Z25	C76 Chip Capacitor

Switch P.C. Board (KP-404G)

Mark	Part No.	Symbol & Description
★	DS135 or	D1
★	SM-1A-02	
★★	CSL-026	S1 Switch
★★	CSN-071	S2 Switch

LED P.C. Board (KP-404G)

Mark	Part No.	Symbol & Description
★	PR5532K	D1 LED (M.S)
★	PG5532KX	D2 LED (70 μS/METAL)
★	AA5532K	D3 LED (DOLBY NR)
★	PG5532TX	D4 LED (PLAY)

Door Unit (KP-404G)

Mark	Part No.	Symbol & Description
★	PY4524K	D1, D2
	RD1/2VS471J	R1

Miscellaneous Parts List (KP-404G)

Mark	Part No.	Symbol & Description
★★	CSN-070	S1 Switch (FF/REW)
★★	CPB-062	HD1 Head
★★	CXM-082	M Motor
★	CXP-033	SO1 Main Solenoid
★	CXP-032	SO2 M.S Solenoid
	CCL-107	C1 Feed through Capacitor
	CEA471M16L	C2 Electrolytic capacitor

AMP Assy (KP-202G)

MISCELLANEOUS

NOTICE:

As for the Q5—Q10 use the same ones and the same rank for both channels.

Mark	Part No.	Symbol & Description
★★	MB3106MF	IC1, IC2
★★	BA338	IC3
★★	2SD601-YR or	Q1, Q2, Q11 Chip Transistor
★★	2SD601-YS or	
★★	2SC2812-L6 or	
★★	2SC2812-L7 or	
★★	2SC2712-LG or	
★★	2SC2712-LL	
★★	2SD601-YO or	Q3, Q4, Q12, Q15, Q16 Chip Transistor
★★	2SD601-YP or	
★★	2SD601-YQ or	
★★	2SD601-YR or	
★★	2SD601-YS or	
★★	2SC2812-L4 or	
★★	2SC2812-L5 or	
★★	2SC2812-L6 or	
★★	2SC2812-L7 or	
★★	2SC2712-LO or	
★★	2SC2712-LY or	
★★	2SC2712-LG or	

Mark	Part No.	Symbol & Description	
★★	2SC2712-LL		
★★	2SB709-AP or	Q5—Q10	Chip Transistor
★★	2SB709-AQ or		
★★	2SB709-AR or		
★★	2SB709-AS or		
★★	2SA1179-M5 or		
★★	2SA1179-M6 or		
★★	2SA1179-M7 or		
★★	2SA1162-SY or		
★★	2SA1162-SG		
★★	2SD613	Q13	
★★	2SD601-YP or	Q14	Chip Transistor
★★	2SD601-YQ or		
★★	2SD601-YR or		
★★	2SD601-YS or		
★★	2SC2812-L5 or		
★★	2SC2812-L6 or		
★★	2SC2812-L7 or		
★★	2SC2712-LY or		
★★	2SC2712-LG or		
★★	2SC2712-LL		
★	MA151K-MH	D1	Chip Diode
★	CZ-084	D2	
★★	CCS-272	VR1	Volume, 20 kΩ (B), 50 kΩ (MN)
★★	CCS-276	VR2, VR3	Volume, 20 kΩ (A)
★★	CSG-165	S1, S2	Switch (M.S, 70μS/METAL)
★★	CGG-130	S3	Switch (LOUDNESS)

RESISTORS

Mark	Part No.	Symbol & Description
	RS1/8S□□□J	R1—R16, R19—R24, R26—R54, R56, R57, R59—R63, R67, R68, R74 Chip Resistor
	RD1/4VM□□□J	R17, R18
	RD1/4PM□□□J	R25, R55, R58, R65, R66, R69—R73
	RD1/2PS□□□J	R64

CAPACITORS

Mark	Part No.	Symbol & Description	
	CKSYB681K50	C1, C2	Chip Capacitor
	CEANL3R3M25L	C3, C4	
	CCH-066	C5, C6, C48	47μF/10V
	CQMA103J50	C7, C8	
	CQMA153J50	C9, C10	
	CCH-060	C11, C12, C13—C36, C43, C45, C47	1μF/50V
	CQMA152J50	C13, C14	
	CSYAOR33M25 SAN	C15, C16, C29, C30	
	CCH-063	C17, C18, C21, C22, C51	10μF/16V
	CCH-064	C19, C20	22μF/10V
	CQMA562J50	C23, C24	
	CQMA333J50	C25, C26	
	CQMA683J50	C27, C28	
	CEA221M16L	C37, C50	
	CEA470M16L	C38	
	CEA471M16L	C39	
	CKSYB392K50	C40	Chip Capacitor
	CKSYF223Z50	C41, C42	Chip Capacitor
	CCH-061	C44	2.2μF/50V
	CCH-062 or CSZA4R7M16	C46	4.7μF/35V
	CSZAR15M35	C49	
	CKSYF104Z25	C52	Chip Capacitor

Switch P.C. Board (KP-202G)

Mark	Part No.	Symbol & Description	
★	DS135 or	D1	
★	SM-1A-02		
★★	CSL-026	S1	Switch
★★	CSN-071	S2	Switch

LED P.C. Board (KP-202G)

Mark	Part No.	Symbol & Description	
★	PR5532K	D1	LED (M.S)
★	PG5532KX	D2	LED (70μS/METAL)
★	PG5532TX	D3	LED (PLAY)

Door Unit (KP-202G)

Mark	Part No.	Symbol & Description
★	PY4524K	D1, D2
	RD1/2VS471J	R1

Miscellaneous Parts List (KP-202G)

Mark	Part No.	Symbol & Description	
★★	CSN-070	S1	Switch (FF/REW)
★★	CPB-064 or	HD1	Head
★★	CPB-065		
★★	CXM-082	M	Motor
★	CXP-033	SO1	Main Solenoid
★	CXP-032	SO2	M.S Solenoid
	CCL-107	C1	Feed through Capacitor
	CEA471M16L	C2	Electrolytic Capacitor

SERVICE INFORMATION

PIONEER

No. SI-C35131
Date. Sep. 16, 1981

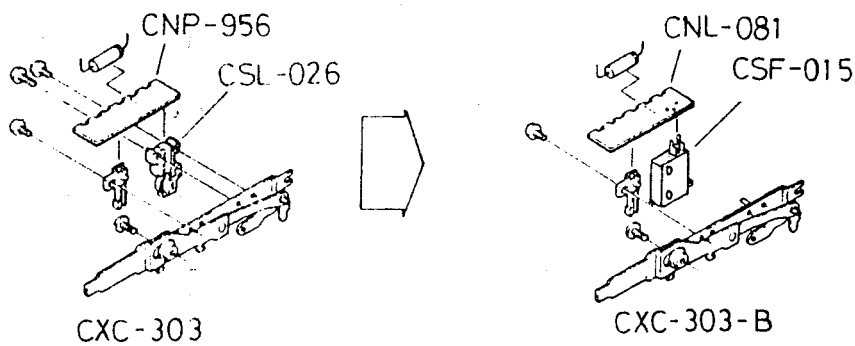
MODEL: KP-202G/US, CA, E KP-404G/US, CA, E

SUBJECT: Change of Switch (CSL-026 ⟶ CSF-015), P.C. Board (CNP-956 ⟶ CNL-081) and Holder Unit (CXC-303 ⟶ CXC-303-B) in Cassette Mechanism Ass'y.

KP-202G/US,CA,E ----- CXC-334
KP-404G/US,CA,E ----- CXC-336

REASON: To improve reliability of Switch.

OLD NEW



NOTE:
1. Old and new parts are not interchangeable.
2. When changing old part to new one, change others as well to new ones at same time.
3. Only new parts are supplied after old parts have finished.

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APPLICABLE SERIAL NO. :

KP-202G/US	03001∿
KP-202G/CA	00401∿
KP-202G/E	17301∿
KP-404G/US	05001∿
KP-404G/CA	01901∿
KP-404G/E	30001∿

Pioneer Electronic Corporation

(C-4016 SPC-HK-RA 300)

Manager. A. Yamashita
Service Section, International Division